

# AMATEUR RADIO

JULY  
1947

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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# AMATEUR RADIO

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## EDITORIAL



When the final decisions of the International Telecommunication Conference on Amateur Frequency Allocations are promulgated, we hope that a fair proportion of the spectrum will be allotted to Amateurs and that our already overcrowded bands will not be reduced still further.

With the present world wide increase in Amateur Stations, an increase in the width of our bands would be the logical step for the Conference to take and we sincerely trust that they will encourage a section of the community who have proved their national value.

When listening to many of the Commercial Stations who occupy a considerable portion of the spectrum for little or no apparent purpose, one can be pardoned for wondering just what justification there is for the continual emission of signals which appear to be using valuable frequency assignments, merely to ensure their retention against some possible future use.

Anyone who listens consistently on our bands will hear Amateurs who selfishly misuse our extremely small frequency allocations by transmissions which are purely social in character or who talk interminably, often repeating themselves three

or four times. This practice should make any thinking person consider that it is time for us to develop and use better operating procedure especially on our best DX bands.

At the last Federal Convention it was decided that each Division should bring to the notice of its members the advisability of refraining from local rag-chewing on the 14 Mc. and 28 Mc. bands during DX hours; suggesting as an appropriate alternative the use of the V.H.F. bands for that purpose. Also the Federal Convention decided to seek through the I.A.R.U. comment by international membership societies on the desirability of sub-dividing the High Frequency Amateur Bands into phone and c.w. sections with a view to presenting to the Federal Council such opinions for their consideration.

From the above it is apparent that efforts by the W.I.A. are being directed to the problem of using our limited allocations to the best advantage.

It is up to each Amateur to put more thought into each transmission, to ensure that we eliminate unnecessary repetitions, lengthy conversations, and over long calls.

W.R.G.

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# A SIX ELEMENT ROTARY BEAM FOR 166 Mc.

By COLIN A. MACKENZIE,\* VK3ACM

The 166-170 Mc. amateur band offers many possibilities of carrying out interesting experiments on antennas and propagation that cannot be done on lower frequency bands by the average experimenter because of space limitations.

Up till the date of writing all those active on 166 Mc. are using vertical antennas, and, as in the past, there has been much discussion on vertical versus horizontal polarisation. A great deal of reading on this subject was done and, from evidence gathered, the following conclusions were arrived at. At wavelengths below 50 Cm. there is no observable difference between signals obtained with vertical polarisation and horizontal polarisation. As the wavelength is increased above 50 Cm. vertical polarisation begins to give better signals in the shadows of hills, etc., and horizontal polarisation out of the shadows. At wavelengths above about 5 meters, vertical polarisation gives better signals than horizontal polarisation, both in and out of the shadows, but the difference is greatest in the shadow and least out of it.

These conclusions, and the fact that all those already on 166 Mc. were using verticals, led to the use of a vertical antenna by the writer. Although I am not convinced yet as to which method is the best for this frequency, and would like to point out here that any change from vertical to horizontal polarisation on this band should only be made after exhaustive and well organised tests over different paths of varying contours.

The six element beam to be described could, with slight constructive alterations, be made to operate for horizontal polarisation if necessary, and is shown in Figure 1. It consists of two, three element vertical parasitic close spaced arrays, spaced one half wavelength apart and fed in phase. The feed line from the transmitter is 50 ohm co-axial cable, so at the point of feeding each three element beam is required to present an impedance of 100 ohms.

The driver elements consist of folded dipoles having unequal diameters,

3/8-inch diameter tube and 9 B. & S. bare copper wire being used. The centres of the 9 B. & S. copper wire on each folded dipole being joined by the phasing line, which actually consists of two quarter wave Q matching sections, designed to match the centre of the driven elements to the 50 ohm co-axial cable.

The ratio of diameters in the folded dipoles is  $3.75 \div .114 = 3.29$ .

Now from the charts published in "Amateur Radio" May 1947, page 6, and assuming an impedance of 9 ohms at the centre of a plain dipole in a three element close-spaced parasitic array, the above folded dipoles have input impedances of 90 ohms each.

It is now necessary to transform this impedance of 90 ohms to 100 ohms, the reflected impedance required by each beam at the feed point. The transformation is carried out by the use of Q matching sections.

The characteristic impedance of quarter wave Q matching sections is given by—

$$Z_0 = \sqrt{Z_r Z_i} \dots (1)$$

where  $Z_0$  = impedance at output of Q section.

$Z_i$  = impedance at input to Q section.

Substituting known values in equation (1)—

$$\begin{aligned} Z_0 &= \sqrt{90 \times 100} \\ &= \sqrt{9000} \\ &= 94.8 \text{ ohms.} \end{aligned}$$

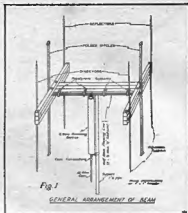
The characteristic impedance of a parallel conductor line is—

$$Z_0 = 120 \cos^{-1} \frac{D}{d} \dots (2)$$

where  $Z_0$  = characteristic or surge impedance.

$D$  = spacing, centre to centre of conductors.

$d$  = diameter of conductors.



Using 3/8" diameter tubing and substituting known values in equation (2) we have:—

$$94.8 = 120 \cos^{-1} \frac{D}{0.375}$$

Solving for D we obtain:—  
0.498", say 1/2 inch.

To save calculations required for quarter wave Q matching sections, a chart is supplied showing surge impedance plotted against spacing/diameter ratio for parallel conductors. A word of warning should be added here about the usual formula as given in most handbooks for the surge impedance of parallel conductor transmission lines, i.e.  $276 \log_e b/a$ , where  $b$  equals spacing, centre to centre of conductors, and  $a$  equals radius of conductors.

This equation is very inaccurate for values of impedance below about 300 ohms, the error increasing as the value of impedance decreases. In other words it is only accurate when  $D$  is very much greater than  $d$ .

The length in inches of quarter wave Q matching sections—

$$= \frac{246 \times .95 \times 12}{\text{freq. (Mc.)}} \dots (3)$$

The factor .95 is the propagation constant for parallel tube air dielectric line.

For 166 Mc. the length of a Q Section will be—

$$\frac{2804.4}{166} = 16.69 \text{ inches.}$$

As two such Q matching sections form the half wave phasing line, the overall length will be 33.38 inches, say 33 1/2 inches. This line is spaced by 4 polystyrene supports as shown in Figure 3.

\*34 Orange Grove, Camberwell, Vic.

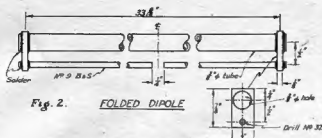


Fig. 2. FOLDED DIPOLE

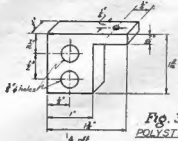


Fig. 3. POLYSTYRENE PHASING LINE SUPPORTS

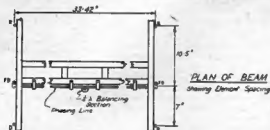


Fig. 4.

#### LENGTH OF THE ELEMENTS

The total length around the loop formed by the folded dipole is calculated from—

$$\text{length (inches)} = \frac{11450}{\text{freq. (Mc.)}} \quad (4)$$

$$= \frac{11450}{168} = 68.156 \text{ inches.}$$

Figure 2 shows the construction of the folded dipoles. The tubes and 9 B. & S. wire should be cut about 1/4-in. longer than required to allow for tuning.

#### DIRECTORS

The directors should be about 4% shorter than a half wave and the length is calculated from—

$$\text{length (in.)} = \frac{5540}{\text{freq. (Mc.)}} \text{ less 4\% } (5)$$

$$= \frac{5318.4}{168} = 31.657 \text{ inches.}$$

The directors should be cut to about 30 inches and adjustable stubs fitted in the ends to allow for final tuning.

#### REFLECTORS

The reflectors should be about 5% longer than a half wave.

$$\text{length (in.)} = \frac{5540}{\text{freq. (Mc.)}} \text{ plus 5\% } (6)$$

$$= \frac{5817}{168} = 34.625 \text{ inches.}$$

The reflectors should be cut to about 32 inches and adjustable stubs fitted in the ends to allow for tuning.

#### SPACING OF ELEMENTS

Use .1 wavelength spacing between driven elements and directors, and .15 wavelength between driven elements and reflectors. These spacings are shown in Figure 4 and are 7 inches and 10.5 inches respectively.

When first tried the beam pattern was lop-sided, necessitating pointing the beam in a different direction to that from which the signal being received was known to be radiating. This fault was due to feeding the beam with unbalanced co-axial cable thereby unbalancing the antenna and distorting the radiation pattern. To overcome this a line balancing section was added and had the desired effect.

Now much had been heard over the air about what was called a trombone balancing section, but after much thought and investigation this method was eliminated, because, as well as being a balancing section, the trombone is also a transformer section with a ratio of four to one, which means that for 50 ohm co-axial a load of 200 ohms would be required at the balanced output. The simplest balancing section was finally selected, this being the much used quarter wave balancing section.

Figure 5 shows the construction of this section. The length being given by—

$$\frac{2808}{\text{freq. (Mc.)}} \quad (7)$$

$$\frac{2808}{168} = 16.71 \text{ inches.}$$

The diameter of the outside cylinder is not important but should be made large enough to consider the section as having air dielectric.

Although the beam has not been tuned, the directors and reflectors only being adjusted to the calculated lengths, results in actual practice, considering the present height is only 22 feet off the ground, have been most promising.

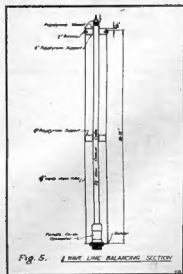


Fig. 5. 1/4 WAVE LINE BALANCING SECTION

A word of warning should be given regarding connection of feed to Q matching sections. This connection should be made in the exact centre of the half wave phasing line, otherwise "slewing" of the radiation pattern, due to phase differences between the two beams will take place, causing a similar effect to that caused by the unbalanced feed line.

Since erecting the beam just described, a different method of feeding has been worked out, and will be tried as soon as possible. In the writer's opinion the new method should be more successful and is worthy of a short description.

Instead of the unequal diameter folded dipoles, it is intended to use two 1" diameter tubes, i.e. equal diameters, giving a step up ratio of

4 to 1. This will give an impedance at end feed point of 36 ohms.

The quarter wave Q matching sections will have a characteristic impedance of  $\sqrt{36 \times 100} = 60$  ohms. Such a low value of impedance can best be constructed in the form of co-axial lines.

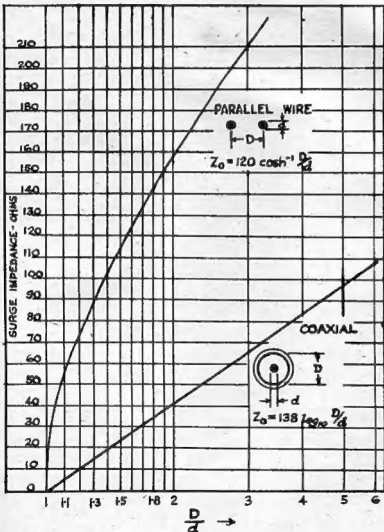
For air dielectric co-axial lines the surge impedance is:—

$$Z_0 = 138 \log_{10} \frac{D}{d} \quad (8)$$

where D = inside diameter of outside conductor.

d = outside diameter of inside conductor.

A chart showing surge impedance of co-axial lines plotted against ratio D/d is given to save the above calculations.



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# DX BOOK-KEEPING

By W. T. S. MITCHELL,\* VK3UM

## 1.—INTRODUCTION

Whilst most of the pre-war school of DXers have by now adopted some means of logging and keeping a record of DX contacts, the newcomer to the illustrious ranks of DXers is perhaps doubtful of the best method to adopt. This article is here presented for their guidance. If the full methods explained are not used, it is hoped that at least some worthwhile ideas on this subject may be obtained.

## 2.—THE STATION LOG

**Brief Description.**—Although this section may seem superfluous in view of the fact that A.R.R.L. Log Books are readily obtainable, and that all Amateur Stations are required by Regulation to possess a log, it is intended here to outline a log book which more nearly fulfils the ideal. The individual can modify printed log books, in most cases, to this form.

It must be emphasised that every transmission that emanates from an Experimental Amateur Station should be logged, especially if one operates exclusively on the V.H.F. Adoption of this practice initially may save you many unnecessary headaches later.

**Form.**—For those who intend to either modify their present log book or make up one of their own, the following columns should be used. Column widths are dependent on the size of the log book and the requirements of the entry. Columns required are:—

- (1) QSO Number.
- (2) Time.
- (3) Station called.
- (4) Called by.
- (5) Report given (three small columns for R.S.T.).
- (6) Frequency or Band.
- (7) Receiver Dial Setting.
- (8) QTH.
- (9) Report received (similar to 5 above).
- (10) Time QSO ended.
- (11) Remarks (name of operator, etc.).
- (12) QSLs (two small columns for QSL sent and received).

The back of the sheet (or the left hand page when the log is opened out flat) requires only two columns:—

- (1) Time (small column).

- (2) Experimental changes (in equipment, circuits, adjustments to transmitter or the antenna, or other experimental work—large column occupying remainder of the page).

**Entries.**—The entries to be made are mainly self-explanatory, although several points in this connection may be made.

(1) Date.—This may be entered with pen or date stamp at the left side of page and nothing else should appear on this line. If any experimental changes, etc. are made the date should also be entered (where possible) on the left hand page opposite the same date on the log page, and any relevant entries made thereunder.

(2) Time.—May be either G.M.T. or standard local.

(3) QSLs.—In these columns, a "tick" is generally used when QSL card is sent or received.

**General.**—It is important to note that in regard to Log Books, all pages should be consecutively numbered. The consecutive numbering should continue on into each additional Station Log. The reason for this point is amplified and explained in the subsequent sections.

## 3.—THE STATIONS WORKED RECORD

**Description.**—This log book is complimentary to the Station Log and is especially useful to the ardent DXer. In it is kept a record of all stations contacted.

The best type of book to use is a loose leaf type with an alphabetical index included for easy reference. A book with a stiff cover and 4-hole spring binding is to be preferred, as extra sheets may have to be added from time to time.

Pages are inserted after each letter of the alphabet and will contain all country prefixes that commence with that letter. For example, under the letter "H" would appear HA, HB, HC, HE, HH, HI, etc., in that order. Stations are then entered according to their call prefix.

A miscellaneous page may be inserted after "M" to allow for countries that have no prefix allotted. Suggested index letters are:—A, C, D, E, F, G, H, I, J, K, L, M, O, P, S, T, U, V, VK, W, X, Y, Z and ZL.

**Form.**—Generally, each page is ruled into three main columns, front and back of the page, after allowing sufficient binding space at the left or right. This has been varied in the writer's case for VK, W and ZL. VK and ZL are divided into only two main columns. The W sheet or its

counterpart will be discussed in the next section.

The three main columns are subdivided into smaller columns as follows:—

- (1) Station Call.
- (2) Bands.
- (3) Remarks.
- (1) Station Call.—Should be made only of width to allow for the largest call likely to be encountered, e.g. UIRKFKQ.

(2) Bands.—This column occupies most of the space and is divided again into 4 to 6 small columns about 1" wide. Allowance is made here for the main DX bands, i.e. 7, 14, 21 and 28 Mcs. In the case of VK and ZL sheets, all bands may be included, i.e. 3.5, 7, 14, 21, 27, 28, 50 and 166 Mcs., as only two main columns occupy the full page width.

(3) Remarks.—Width only to take a few pertinent points about the station contacted and operator's name.

The main columns on each page are given a prefix and corresponding country heading. The three main columns on one page might be headed:—HA-Hungary, HB-Switzerland, HC-Ecuador.

If more stations are expected to be worked than there are lines in any one main column, two or even the three main columns may be allotted to one prefix. The English prefixes for instance, G2, G3, etc., are each allotted three main columns, or one full page each.

### Entries.—

- (1) Under "Station Call," enter call of station contacted.
- (2) Under "Bands," enter page of Station Log under the appropriate band on which the station is worked.
- (3) Under "Remarks," enter operator's name.

For example, G6CL may have been QSOed on 14 Mc. and logged on page 115 of Station Log. The entry in the Stations Worked Record would then be:—

G6CL under "Station Call."  
115 under "Bands—14 Mc."  
John under "Remarks."

G6CL may subsequently be QSOed on 7 and 28 Mc. when the page of the Station Log would be entered opposite station and under the appropriate band.

**Note.**—The log page is used as a reference in preference to the number of the QSO, as the Station Log page numbers would take some considerable time to exceed three figure numbers, with consequent ease of entry in the space provided.

As a check on QSLs from individual stations, a tick or underline can be made against log page entry opposite the station.

This log book will be found to be invaluable for quick reference, when in QSO, to find whether station has been contacted previously. The alphabetical index makes this simple.

\*1946 Malvern Road, East Malvern, S.E.5.



#### 4.—THE U.S.A. STATIONS WORKED RECORD

Factiously, it might be said that this log was designed for the unwary newcomer to DXing, who calls CQ DX and invariably raises a W! Whilst this may be partly true, QSOs with W stations are inevitable and because of their numbers and lengthy call-signs, are difficult to keep a check of by the previously described method. It may therefore become necessary to keep a separate log of W stations. The W page in the Stations Worked Record is then replaced by this one. If it is decided to use the previous method, this log may be dispensed with.

**Description.**—This log is somewhat similar to that in section 3, but has a complete alphabetical index from A to Z. It has, in the initial layout, only 28 pages, one for each letter. These letters of the index represent the first letter of the call sign after the numeral.

**Form.**—Each page is ruled into 5 main columns, both front and back, after allowing sufficient binding space at the left or right. The main columns are subdivided so:—

- (1) Station Call.—Column wide enough only to take two letters.
- (2) Bands.—Divided into main DX bands as for Stations Worked Record, but necessarily smaller.

(3) State.—Narrow column to take abbreviated state name, i.e. Rhode Island, R.I.

(4) Name.—Column for operator's name.

The main columns, front and back of the page, are headed for a page inserted under Index "H," so:—

Front of page—

W1H W2H W3H W4H W5H

Back of Page—

W6H W7H W8H W9H W0H.

Extra pages may be added when a column is filled up, or when the new prefix "K" comes into use.

#### Entries.—

- (1) Under "Station Call." enter second, or second and third letters of call after the numeral.
- (2) Under "Bands" enter page of the Station Log under appropriate frequency band.
- (3) Under "State," enter abbreviated letter or letters.
- (4) Under "Name," enter operator's name.

For example, W4MS, in Florida, was contacted on 28 Mc. on page 87 of Station Log. Under page "M" and column "W4," enter:—

S under "Station Call."  
87 under "Band-28 Mc."  
F under "State."  
Ed under "Name."

Or, WIBUX, in Massachusetts, who was QSOed on 14 Mc. on page 93

of Station Log. Under page "B" and column "W1," enter:—  
UX under "Station Call."  
93 under "Band-14 Mc."  
M under "State."  
Doug under "Name."

QSLs received may be marked as for Stations Worked Record. With this log, speedy reference may be made to a station even while in QSO.

#### 5.—THE DX COUNTRIES RECORD

This log is a refinement that may be added to your system if desired. It lists therein, countries QSOed, on what bands, and how many have QSLed. World Zone records are also kept account of.

**Description.**—This log is a similar type to the U.S.A. Stations Worked Record, being again a loose leaf spring clip binding with alphabetical index. One sheet only is required for each index letter.

**Form.**—Each page, under its index letter, consists (in order) of Countries as listed by the A.R.R.L. DX Century Club (February, 1947). All countries commencing with A are listed in order on page A, those with B on page B, and so on. The page is divided into columns as follows:—

- (1) Country.
- (2) Prefix.
- (3) Zone.

(4) Bands.—This will be again divided into smaller columns to include 3.5, 7, 14, 21, 27, 28, 50 Mc. and Total.

Continued on Page 24

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## FEDERAL NOTES

The Rules of the DX Century Club have been approved and will be published in the forthcoming issue of "Amateur Radio." All DX contacts made since the return of licenses will be eligible for inclusion.

Federal Executive is considering the entries submitted for the design of a membership certificate and its decision will be announced shortly.

The Rules of the VK-ZL Contest to be held during the four week-ends in October next, have been completed and have been transmitted overseas for publication. Phone and c.w. participants will each be allotted two week-ends.

As directed by the last Convention, consideration is being given to the rules, etc., for an annual Interstate Contest to perpetuate the names of Amateurs who lost their lives during World War II. Suggestions as to an appropriate name for such a contest will be appreciated by Federal Executive.

Application has been made to the P.M.G.'s Department for a license for the Official Station of the Federal Council. Schedules will be announced later. It is understood that the call sign will be VK3WIA.

A sum which is estimated to cover six month's operation of the Federal QSL Bureau was passed for payment.

The manufacturers have advised that delivery of badges will be effected not later than the 2nd week in July, 1947. If no industrial troubles are encountered.

### NEWS FLASH!

Official Bulletin No. 91, from the A.R.R.L. Headquarters, West Hartford, Conn., 2nd June, 1947, to all Radio Amateurs:—

Allocation studies are now in full swing at Atlantic City in a sub-committee considering 3 to 25 Mc. Matters are progressing normally with no more than the expected difficulties. The Amateur position is strong and is supported by numerous Countries, all the Americas particularly holding a solid front. In respect of the 7 Mc. band the United States has told the Committee quite plainly that it can never give up a single Kilocycle. The new 21 Mc. band is taking satisfactory initial form. Some weeks must elapse before definite allocation pattern is visible. A satisfactory definition of the Amateur Service has been adopted by an Atlantic City sub-committee defining it as a Service of Self-training, intercommunication and technical investigations carried on by Amateurs.

## FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

The first post-war cards from Rumania have recently arrived. This batch from YR5X, Box 326, Bucharest, has been anxiously awaited by a couple of DX C.C. aspirants.

VU2CW, "Tony" Timme, of G.H.Q. Signals, New Delhi, India, advises that from middle of May, the station will close and he will return to his home QTH in England. Desires all outstanding wallpaper to be sent via R.S.G.B.

The following QTHs may be of interest:—

EK1AA, A. K. Deviney, c/o RCA Communications, British P.O. Box 57, Tangier.

I8USA, U.S.A.R.S., Asmara, Eritrea. W0MCF/C1, Box 2497, Shanghai, China.

Louis White, W6WLY, heard to advantage on 28 Mc. c.w., was a member of the 2nd A.I.F. and underwent a radar school at Ingleburn, N.S.W. Louis, who is a seaman, hopes to visit VK shortly and recently sat for his ship operator's ticket. He has vivid recollections of the quality and strength of a certain amber fluid purveyed in VK and hopes to renew

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his acquaintance with the above substance soon after reaching Australia.

"Stinky" Green, ex-TG9FG, is a clipper pilot and is now back in the U.S.A. flying on home routes. TG9JK from whom this information comes, stated that his station is the sole remaining TG on c.w. This is not correct, however, as writer heard TG9BA on 28 Mc. c.w. a few moments after concluding the contact with TG9JK.

The recently licensed Canal Zone bunch—about 60 licenses have been issued so far—are very active on 28 Mc. and put good c.w. signals into VK. They can be heard working LI2B—the raft Kon Tiki on schedule most any day. Most prominent among the bunch are Ollie, Tommy and Kim.

Gene, W4JQT/MM aboard the vessel National Victory, has been heard regularly from East African ports on 28 Mc. One day during late May Gene had a visitor aboard in the shape of Bill, W3WTO, whose ship was anchored alongside the National Victory when at Port Elizabeth. Many VK Hams have made this interesting contact.

A keen philatelist soliciting VK contacts is Dr. Angel Mora, E8AB1, Canalejas 1, 1st Melilla, Spanish Morocco.

A complete list of the license holders in Holland has just come to hand from V.E.R.O.N., their national Society. The list, which shows that Amateur Radio is booming in the Netherlands, contains many well known pre-war call signs and names but alas a number of just as well known names are missing.

A brochure is to hand from a body styled The World Friendship Society of Radio Amateurs, Archers Court, Stonestile Lane, The Ridge, Hastings, Sussex, England. Its objects are to promote World Friendship per medium of Amateur Radio, to provide education and holiday facilities at home and abroad, to maintain a social and technical service, journals and QSL bureau, language services, library, laboratories and other facilities. Membership is open to everyone who is interested in Amateur Radio, and the annual subscription is 7/6 (English).

An interesting brace of cards are to hand from D4TAO (pre-war) confirming a contact in 1939 with VK2TF. Accompanying it is another card from DEM1829 to which status D4TAO has now been reduced, giving VK2TF a listener's report and stating it was impossible to forward earlier the card relating to the pre-war contact.

An interesting visitor turned up in Melbourne early in June in the shape of Jim Wetherell, G5UB/P. Jim also has a Canadian call sign. His ship has now left for Sydney at which port he expects to remain for some weeks (wharf laborers permitting). Jim desires all wallpaper relating to past and future contacts to be sent to his home address: 4 Park Villas, Wetherby, Yorkshire, England.

Remember a par in February "A.R." relative to the claim of PK6HA that VKs were treating him badly in the shape of QSLs? Well gents the par bore fruit thanks, as the following letter from PK6HA testifies:—

"I hurry to write you to thank you for helping me to get the QSLs. Just today (13/5/47) I received the February issue of "A.R." and noticed the par in the QSL notes. I am glad to be able to tell you that I think the VKs still are good sports, perhaps only a bit slow because after the par appeared I received two letters, also today, containing a lot of QSLs."

An interesting journal in mimeograph form is to hand from the F.E. A.R.L. and is the official journal of the Far East Amateur Radio League. Many interesting items of local interest are included and many worth recounting if space permitted.

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## FIFTY AND UP

### FLASH—50 Mc. OPENS AGAIN

On Sunday, 22nd June, in the middle of a most satisfactory field day in VK3 the 50 Mc. band opened from 1500 hours to 1630 hours and VK4PG in Bundaberg was worked by 3GG, 3HT, 3ED, 3BW, 3RZ, 3CP and later 3DA. 4PG also heard 3BD and 3BD heard 4PG but no contact was made. 4PG also worked 3ZL and 3WD in Ballarat.

Signals were fair to good with QSR mostly both ends but not as good as in December last. It is a great pity that there were not more VK4 stations on. If there were more general activity on 50 Mc. it is almost certain there would be more DX contacts made.

## VICTORIA

The VHF Group held the usual monthly meeting on the Wednesday following the general meeting. Good attendance of Hams and visitors attended. VK3YS did a good job as Chairman.

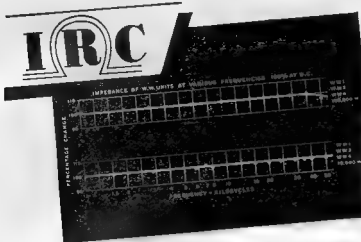
Arrangements for field day were finalised and publicity on other bands arranged for. 3LS displayed some of his 188 Mc gear, a 5 p. CV6 linear oscillator with parallel lines in cathode and plate circuits. Reg explained circuit of same, together with power output, frequency stability, etc. This was his portable rig and was well made. He uses a pair of 834s with 20 watts input in same circuit, at home, on 188 Mc.

3NW displayed a "Hi C" 166 Mc. oscillator coupled to a 832 p.p. final. Oscillator included a DET3 (7193-CV6) with a one turn  $\frac{1}{4}$ " diameter copper tube 2" diameter as inductance tuned with 50 pfd variable condenser; 832 p.p. final used all "poly" insulation and silver wire for coils, etc., and copper chassis; construction was very neat and compact.

After meeting closed general discussion followed and several Hams present wanted "dope" on how best to go on 50 Mc.

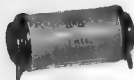
Band was rather quiet in June. Stations active include 3BD, 3CF, 3MJ, 3BQ, 3HK, 3YS, 3EH, 3HT, 3XA, 3ABA, 3QR, 3GG, 3DA, 3QZ, 3AN, 3HZ (Warrigul), 3BW (Port-arlington). Also sundry 7 Mc. harmonics and key clicks (3JP especially). Also one or two vicious super-regens.

VK3BD worked a station signing LU2CP on Saturday, 2/6/47, at 1615. After several overs, with 3BD on i.c.w. and LU2CP on phone, stations managed to exchange call signs and signal strengths. Signals were S1-S4 and as LU2CP was not speaking English, the going was tough. Subsequently a letter from the Radio Club Argentino stated: "With respect to above we are pleased to advise that



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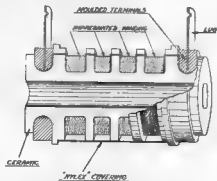
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**LU2CP does not exist in this country, and further that the call is unknown in the Argentina.**

The several signs of these notes have heard several stations on the 50 Mc. band with QSB on them recently, during the day time. Only modulation has mostly been "hello test, hello test," whistling, etc., and, most exasperatingly, never a call sign. Would it be asking too much for stations testing to say (example) "VK 3XYZ testing on 50 Mc." instead of "hello test, 1-2-3-4-5-6-7," etc. DX conditions do not as a rule last long on 50 Mc. and you don't know how far you may be "getting out."

Listening on the 50 Mc. band one often hears a station come on and call CQ once or perhaps twice and disappears; a short time later another station comes on and calls CQ in turn and disappears; this may go on all the evening. It has been suggested that if stations made it a rule to call "on the hour" or half hour, more contacts may be made. Running tone for say five minutes before calling CQ does no harm either. "It is easier to find a needle if it has a long thread on it."

Stations active on 166 Mc. include the following (by courtesy of 3MJ who has a 15 tube receiver working on that frequency):—3MB, 3NB, 3NW, 3YS, 3MJ, 3LS, 3OF, 3ACM, 3XA and 3XM.

#### QUEENSLAND

Most of the locals are suffering from that well-known malady "beam fever," and arrays of various sorts are sprouting on all sides. The first victim in the present scourge seems to have been 4PG in Bundaberg, who came to light with a 4 element horizontal. Arthur has arranged skeds with Brisbane in an effort to break through, the times of transmission being 2000 and 2010 hours, the signal being m.c.w. and on for five minutes at each of the above times with a listening period at the end of each transmission. The frequency is 52 Mc. 4FB and 4RY have constructed 2 element rotaries, while 4ZU has one on the drawing board. Funny thing, there's that much thought gone into the thing that it's now possible to light a neon bulb by touching the base of the board. 4KB has fitted an S meter to his super and the lads have lost no time in getting checks off Pat with little details such as front to back ratio, etc.

Queensland's Secretary (4RT) has made his debut on the band, and as the result of some 20 odd D1R06s finding new owners we are permitting ourselves the luxury of thinking that there will soon be a few more operating on 50 Mc. 4ES and 4XG found the job of conversion fairly easy, and Herb was also heard to remark that they didn't seem to be too heavy on batteries.

Paying a brief visit to Brisbane, 4LP (alias 2YQ) found that a healthy

## MONTH'S DX

### WESTERN AUSTRALIA

**24 Mc. Phone, Europe.**—Very spasmodic this month but when band has been open it has produced a good choice. Gs 8SY, 2BMZ, 2CDI, 8FH, 5OV and 3WH from the old country, and from the Continent HB9CV, F8TY, ODK7, and PA0FB were good QSOs. As the winter draws on it is expected that this Continent will be heard even less from 1600-2000 hours.

**Africa.**—Conditions, this month, have favoured this continent very well and some excellent QSOs have resulted. ZSs 61G, 6EB, 6EK, 1AX, 6JB and 5DA were worked with S8 signals or over and these boys from the Union have had a rare time working ZLs the same way as we in VK6 try to work South Africa. From the northern half of Africa VQ2PL, VQ3EDD and VQ4TDE have provided good contacts. Times have been from 1300-2000 daily.

**North America.**—Ws and VEs on this band are becoming rare DX during the morning, but a few east coast contacts have been made around 1900 the long way around across South Africa. Conditions this way have been very spasmodic.

**Central America.**—A few of these elusive birds have put in an appearance during the mornings, but the only contact made was XEIKE.

**South America.**—Some of these boys are being heard quite regularly these days, but it's a different story trying to get in ahead of the ZLs and VK3s. However, CE1AH was worked by VK6KW a few Sundays ago at 1000 while HK4FX has had the strongest signal in VK6 for some time.

**Asia.**—All usual VS1, VS2, J and C boys still about, and it's interesting to note that Hong Kong has now re-licensed its amateurs a few months ago. VS8AM was worked the other Sunday and the contact proved most interesting.

**Oceania.**—VK (east side), ZL, KH6, KA and PK pound through with the

programme of antenna adjustment had been arranged for him but Les rose to the occasion like a true VK4 Up in Ipswich 4AB has succeeded in pushing a signal into Brisbane but hasn't been able to hear the locals. The whole thing was strangled at birth by Ramsay's temporary absence from home, which was a little disconcerting, but we hope to resume again shortly.

4ZU has built his rig up into rack and panel, and added a new 28 Mc. transmitter. 4HR is sporting a new microphone and as a result now has "broadcast quality." 4ZU is getting writer's cramp and is closing down.

advent of winter during daylight hours and may be worked easily.

**14 Mc. Phone, Europe.**—As winter draws on this continent is proving more elusive from 2300-0300 but during the afternoons from 1400-1700 quite a few put in excellent signals the long way round across the Pacific. ON4PW, G5CI and F8NT were worked the long way, while fair QSOs resulted with LILV, G8AC, and G5DQ the short way across India.

**Africa.**—Activity from here has also fallen off lately and is not as consistent as past month's notes have shown. The few QSOs which resulted have been good on the rare occasions the band opened. ZS2X, ZS5M, ZS2CI and ZEZJD filled in a few hours between 2000-2300.

**North America.**—A few "punk" evenings with this continent, but generally speaking it's been wide open from 1600-2200. Ws worked are too numerous to mention but amongst the Canadians were VE4RF, 3AGB, 4QV, 3HC, 7AAD, 3AIU and 4RP who were all worked S8 and over both ways.

**Central America.**—These QSOs are becoming more frequent lately as XE1FB, XE2HY, XE1LE, VP9F and COTCX were worked with good signals from the South East from 1900-2100.

**Asia.**—A good variety of VU, VS, J, etc., to choose from, although contacts this month have not been frequent as conditions have to be very poor from other directions for the writer to turn his beam.

**Oceania.**—Some good contacts from the South Pacific have been made, the best being W6WDM/KW6, J9LG and KH6KK. It's interesting to note that a few ZLs have turned up again in the W phone band after no activity for three months or so.

News from the Danish Amateur Society, E.D.R., states that their summer camp will be held this year at Funen and a large number of visitors from abroad are expected. This camp is an annual event and a transmitter is invariably installed on the main bands. The camp will cover the period July 6 to 13 inclusive. The frequency allocations to the Danish Hams and their compulsory division is of great interest to VK where a similar division could well be instituted. Phone frequencies are shown in brackets: 3.5-3.565, 3.685-3.8 (3.69-3.795), 7-7.2 (nil), 14-14.4 (14.1-14.25), 28-30 (28.5-29.7), 56.5-60 (58.7-59.7) Mcs.

\* \* \* \* \*  
JZAH1 ordered a batch of QSL cards from a Jap printer and on the card included the statement "on the air since 1929." The printer in his wisdom amended this to read "no air since 1929." What do the Japs use to fill their lungs.

## VK4XG



Old-timers may remember Gordon Augustensen better as holder of the pre-war call VK4JN of Mitchelton, Brisbane. VK4XG now operates mostly on 50 Mc., but spins in occasional appearances on 7 and 28 Mc., having separate transmitters for each band.

On the left of the operating table is the 7 Mc. Transmitter, with a signal generator sitting on top. Above the H.R.O. is an eight tube 50 Mc. super (XG's prize baby), with a C.R.O. reposing on top of this last unit for the dual purpose of keeping an eye on modulation, etc., and also to prevent the locals making the receiver dance about. On the right of the picture the 50 Mc. Transmitter is on the top shelf with another C.R.O. visible on the extreme right. Below all this sits a 100 watt 28 Mc. rig with 32B p.a., the unit on the right being a bias supply. Modulator and power supplies are just visible under the operating table. Antennas include a folded dipole for 50 Mc. and a half-wave vertical on the 28 Mc band.

Dealing with personal angle, 4XG's interest in Radio is not confined to Hamdom, as he is associated with a well-known radio firm in Brisbane. Not so long married, he still finds time to keep the 50 Mc. band warm and indeed is one of the stalwarts of that band "Gus," as he is more familiarly known to VK4s, served with a radar unit during the war and perhaps this fact is responsible for the change from a pre-war low frequency man to a post-war high frequency Ham—4ZU.

## Such Nice People

By "GREMLIN"

To the Hams who expressed their appreciation through the May issue, I say thanks, but I'm not too certain about this "blue orchid" stuff. I guess the VK6 gung reckon I'm a pretty vile weed far removed from that noble bloom. MY, OH MY, VK6s your remarks re commercialism make me think—a painful process! What's more I think you might be right. There is much to be said on both sides.

Thanks also to the VK6s who posted me a free copy of a local Radio Club's mag. Sorry o.m., I haven't heard of your Club, probably because I'm a dyed in the wool W.I.A. bloke. As a matter of fact you might call me "W.I.A. Gremlin" and as such my thoughts gush. As 8MU might say on the old adage basis "united we stand, divided we fall." So let's grasp mits across the sandy waste and dig for Amateur Radio, OK?

Heard 3DQ again with a rough note, complete with clicks, chirps and backwave. 2EL told him and then stood by with the helping hand. Nice work Doug and Stan, that's how it should be—the co-operation angle I mean. Have heard you since Doug, with a T9 note so all is well

3BP your note is worse than ever. To your roughness and chirps has

been added a considerable frequency drift plus a parasitic up the other end of band. About 1945, 12th June, 7 Mc., fundamental low end, parasitic high end, when the foul deed was committed—If it's any help. Say o.m. I'm on your back aren't I? Three mentions in two months is almost worth a "gong"

To the fore with clicks early in the month:—2ALG, 5JS, 2BK, 2DO and 2PA.

Heard a chap on 14 Mc complaining about harmonics from 3MS and 3IW working on 7 Mc. Apparently had been calling his head off without much success. I couldn't hear them, possibly because of distance, but I pass it on for your benefit.

3TO, you have a rather hefty parasitic on approximately 4500 Kc. Better have a look before the axe falls.

4CK's note would qualify for the suggested "abrasive" section.

Pleased to hear 3WI sponsoring an open season on "pirates." Undoubtedly a lot of the poor sigs and punk operating emanates from these para-

sites and we owe it to ourselves to assist in ridding the air of them. Wish I could catch up with the user of my call—have been after a modulation trannie for a long time.

Incidentally, 3WI's phone is a big improvement but I gather harmonics are still occupying the thoughts of George. One way of spreading the news!

Splashers all—3OG, 5CR, 2ALE, 3FU, 5CH, 3IK and 3AO

3RW has turned to phone. Must be after my disparaging remarks on his c.w. You have a pretty solid hum there Reg, so I guess it's the same old r.f. generator. Boy how you must hate me.

2AMZ also has a bad hum present.

3AIR, your phone is pretty poor quality stuff.

3YL joins in with clicks. Wasn't always there

Before I pull the switch for this month I must thank 6MU. You know o.m., you are the first chap I've struck who even considered for one moment I'm wise. Keep this chappie in mind Editor, he wields a mighty slick crayon and may be good for a few lines for "Amateur Radio" one day.

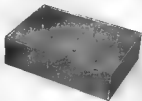
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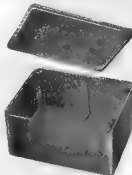
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Cat. No. 1018 . . . . . 3/10



## DIVISIONAL NOTES

### NEW SOUTH WALES

Secretary: Peter H. Adams, VK1JX  
Box 1734 G.P.O., Sydney.  
Meeting Place: Science House, Gloucester and Essex Streets.  
Meeting Night: Fourth Friday of each month.

The annual general meeting, adjourned from April, was held at Science House on 24th May, 1947, with the now customary attendance of well over 100 members. The Annual Report read to members by the President was well received and showed that considerable progress had been made in the Division's activities during the past 12 months particularly with regard to increase in membership. A copy of the Report and Balance Sheet is to be mailed to each member.

Following on the return of a record number of ballot papers, the under-mentioned officers were elected to Council, which at its first meeting, made the appointments as under:—

President: Mr. M. H. Meyers (2VN); Vice Presidents: Messrs. P. H. Adams (2JK), J. Moyle (2JU); Federal Councillor and QSL officer: Mr. J. B. Corbin (2YC); Membership Secretary: Mr. W. Dukes (2WD);

Social Officer: Mr. R. Anthony (2TR); Councilor: Mr. C. Hutcherson (2YP).

The undermentioned additional appointments have either been made or confirmed by the new Council:—

Treasurer: Mr. D. Reed (2DR); Delegates to Bushfires Advisory Committee: Messrs. Meyers (2VN), Moyle (2JU) and Trehearne (2IQ); V.H.F. Officer: Mr. C. Fryar (2NP); War Service Census Officer: Mr. C. Hicks (2ADV).

It will be noted that at the time of writing a new Secretary has not yet been appointed, Mr. Adams continuing to act in that capacity.

During the counting of votes, the Federal Councillor (Mr. Corbin) gave members a brief resume of proceedings at the recent Federal Convention. It is obvious to all that during the next few months considerable attention must be paid to the future organisation of our Institute and to this end a sub-committee of Council has already been appointed to deal with matters affecting the adoption of a uniform constitution. It is felt by Council that the creation of a sub-committee to handle social activities under the guidance of a Councillor will fill a long standing requirement. Preparations are at present being made for the Annual Dinner which of necessity had previously to be deferred.

The attendance at meetings of the V.H.F. Section is rapidly increasing—at the Section's last meeting no less than 65 members and visitors were present. A most interesting lecture was delivered by Mr. Gil Miles on equipment used for the radio control of models. The lecture was illustrated with working sections of the equipment used on the epidiascope.

Although response has not quite reached expectations, several articles have been received as entries in the Division's monthly contest for technical material for "Amateur Radio." The prize for the month of May has been awarded Mr. Alf Barnes (2CE). The opportunity is again taken of pointing out to members that the magazine is in your hands and like any machine, one may only expect results commensurate with the work put into it. The monthly prize of £1/1/- allotted by the Division for the best technical article received for "Amateur Radio" is to continue for a further four months so set to it chaps and see if you can take out that prize.

All equipment, including crystals, made available from the Liquidations Commission has now been distributed and whilst many members had their wishes fulfilled in this respect, it is regretted that resort to allotment by ballot was found to be necessary in so many cases.

The advertisement features a detailed illustration of a Trimax transformer. A banner draped across the top of the unit reads "ALL-ROUND EFFICIENCY". Below this, the brand name "TRIMAX TRANSFORMERS" is prominently displayed in large, bold, stylized letters. The transformer unit itself has various technical specifications and labels, including "TYPE 2", "TA17", and "TRIMAX TRANSFORMERS AUSTRALIA". The background of the advertisement is dark with some light streaks, giving it a technical and industrial feel.

Available in Line to Grid, Plate to Line, Interstage — Single and Push-Pull types, Trimax Transformers are constructed of the finest materials and feature high permeability, Nickel Iron Alloy core—heat treated in our own factory for optimum results.

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## NORTH COAST AND TABLE LANDS ZONE

2ZX puts out a quality signal on 7 Mc. using a vee beam with success. .... 2LH recently gave a "get-together" for the district Hams, all enjoyed themselves; expects to have the new rig going shortly. .... 2AGM often heard on 7 Mc. and he should have the beam on the tower by this. .... 2NY has just completed a new modulator. .... 2GI working plenty of 2Ls on 3.5 Mc. and sometimes on 7 Mc. .... 2SH consistent on 7 Mc. phone and c.w. .... 2PA heard trying out his AT5, works some DX on 7 Mc. .... 2AEY with an inductively coupled dipole on 7 Mc. .... 2RK is QRL building a new rig, consistently on 7 Mc. phone. .... 2CJ no news, maybe fitting the gear in the new home. .... 2AH operating on 7 Mc. and busy revamping the big rig. Please send notes to 2AFP at South Sasno.

## COALFIELDS ZONE

2KZ on 28 Mc. again after being right off for a few weeks; toying with idea of 50 Mc. He reports a new Ham in Kuroi, no call sign yet. .... 2YO heard on 14 Mc. talks of beam antenna but no details. .... 2XT mostly on 7 Mc. phone, has lots of gear and should be active soon. .... 2DG in his new home at Matland but not heard on. .... 2TY no news, give me a tangle some day. .... 2PZ mainly on 7 Mc. phone. Hopes to have a nice noise limiter going soon. .... 2LB has left Cessnock, back in the city.

2MK is active on 28 Mc. and revamping the receiver. .... 2ADT still getting the rare ones on 28 Mc. latest is a QSO with Malta on 28 Mc. fone and confirmation the next day; yes, a cable from Malta a few hours after the QSO did the trick. Has 73 countries now up on 28 Mc. phone, 94 all told. He has been heard by 2EZ in Newcastle on 50 Mc. .... 2YL QRL writing up card index system, mainly on 28, 27 and 14 Mc. phone and c.w. Cessnock boys had a visit from 2L4HS who was brought along by 2FP and 2AGD of Newcastle. Please send notes along to 2YL of Cessnock.

## WESTERN ZONE

2II has a new 14 Mc. rotary and judging from the stations that call him, it surely works. W.A.C. much trouble Max? .... 2NS working on c.w. and is contemplating new 14 Mc. rotary. .... 2OF has left Parkes for the bright lights, best of luck Jack. .... 2EL, a new Ham at Narromine, has nice phone and c.w. on 7 Mc. .... 2AMR very QRL rebuilding, has tried some disposals gear but says n.g. .... 2ACU and 2DO journeyed to 2WH to try and get the AT20 going on some 14 Mc. DX, slight trouble, something

to do with oscillator. .... 2BT still pounding out c.w. on 7 Mc. .... 2DQ last heard of visiting VIS. .... 2IE heard occasionally on 7 Mc. phone, just can't seem to get on permanently. .... The Orange gang are still chasing DX on 28 and 14 Mc.

2TA and 2TC getting going on 50 Mc. Results have been f.b. we believe. .... 2JC heard one night long ago. .... 2ACT buying and selling. .... 2QA pottering along on 28, 14, 7 and 3.5 Mc. phone with band switching xmitter (one switch). Working out system to change bands by voice control (beat that Max). Send your Zone notes to 2QA of Nyngan.

## SOUTHERN ZONE

2ANQ skiing around mountains instead of finishing rig. .... 2APW like an Eskimo went south for his vacation, returned with new vigour. .... 2VK hopes for contacts now that job has cut out, finds ripple with 6L6 instead of 6V6 c.o. .... 2EU heard occasionally on 7 Mc. phone. .... 2OJ returned from holiday with time available and is revamping xmitter and receiver. .... 2GG working mostly on 14 Mc. c.w. also getting phone ready. More notes please chaps to 2OJ Albury.

## VICTORIA

Secretary: A. B. D. Evans, VK3VQ, Box 2611 W.G.P.O., Melbourne.

Meeting Night: First Wednesday of each month.

Meeting Place: Radio School, Melbourne Technical College.

## "FOOD FOR R.S.G.B." APPEAL

Since this Appeal commenced on the 2nd April, 24 food parcels and two soap parcels have been dispatched to the Secretary of the R.S.G.B. for distribution. This represents two cwt. of urgently-needed foodstuffs for our brother Amateurs in Britain. Another 24 food parcels will be on the way when this appears in print. The original objective of one cwt. (12 parcels) per month has already been exceeded.

The Committee gratefully acknowledges the following donations:—

£25 from the W.I.A. Victorian Division.

£7/14/6 from 3YV, North-East Zone Organiser, as result of Zone donations.

£2/10/6 from 3QC, South West Zone Organiser, as result of South-West Zone Convention collection.

Many thanks, fellows, and keep up the good work.

Organisers are still required in the North-West Zone, Eastern Zone and Western Zones. Any Amateurs in these Zones who would be willing to

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VK3BQ

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act in this capacity, should notify VK3UM, the Appeal Secretary, without delay.

In order to officially conduct raffles of radio gear (which has been kindly donated), the Committee were required to apply for registration as a Patriotic Fund. They are now pleased to announce that approval has been granted, and the official designation of the Appeal is now the "Wireless Institute of Australia Food for Britain Patriotic Fund." The metropolitan Committee (VKs 3UM, 3UH and

# Concentration

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3AJE) have also been granted Attorney-General's permission to conduct raffles in Victoria in aid of the Fund.

The first raffle of a new 813 tube and socket will be held at the July meeting. A second 813 and socket will be raffled at the August meeting. Tickets are 1/- each and there is an unlimited supply available to any country Amateur who desires tickets should send a postal note, made payable to any of the abovementioned members of the Committee.

Total receipts to the Fund to date are £24/2/6, expenditure on food parcels £46/16/4, and cash in hand £37/6/2. Tune into VK3WI every Monday night at 7 p.m. for further news of the Appeal.

#### T.A.C. NOTES

**Committee.**—The executive meeting of the T.A.C. is held on the third Tuesday of each month at the Institute Rooms. The Committee are seeking ideas on the modification of the Type 3 Mark II for incorporation in a combined article on this equipment. A practical article on a completely Ham-built Amateur-band receiver is also required. Anyone who can supply these items are urged to forward same to Editor "A.R."

**V.H.F. Group.**—At the last meeting of this Group, 166 Mc. gear was exhibited by Reg Busch (3LS) and Ken McTaggart (3NW). After an explanation of the salient points and operation, an interesting discussion took place. Arrangements were also finalised for the combined 166/50 Mc. Field Day which was held on 21st June.

**Receiver Group.**—A meeting of this Group was held on 25th June, when a demonstration of the operation and aligning of Crystal Gates was given.

**Communications Group.**—Standard frequency transmissions (S.F.T.) and band edge location transmissions (B.E.L.T.) are now a regular monthly feature through 3WI, on the fourth Tuesday on 7 Mc. Spot frequency checks are available whenever 3WI is on the air. The Bush Fire Emergency Net frequency of 6984 Kc. will be covered in these transmissions.

**Library Group.**—Arrangements have been made for the issue of Library Books and Instruments at the general meetings in future, providing a request is received on the day before the meeting. If there are sufficient demands for a modulated oscillator for receiver alignment, the T.A.C. will obtain one for the use of members. Let your wishes be known to a member of the T.A.C.

**General Meetings.**—At the general meeting held on the 4th June, a very interesting and informative wire-recorded lecture of Professor Oilphont on Atomic Energy was presented. This lecture was appreciated by all, and whilst covering a large

scope, in simple language, gave everyone a better insight into the implications and possibilities of this intriguing scientific subject. Mr. E. P. L. Wall, Chief Navigation Instructor of A.N.A., will deliver a lecture on the Orientation of Beams and Great Circle Routes at the next meeting on the 2nd July.

#### S.-W. ZONE CONVENTION AT COLAC

The Convention was held in the auditorium of the local broadcast station and those present were VK3 3AMP, 3JA, 3ZY, 3QC, 3BE, 3ALM, 3SE, 3BI, 3PD, 3KJ, 3KX and 3ZY. The meeting opened with 3AMP in the chair and before the office-bearers were elected it was decided that associate members would be permitted to vote on zone domestic matters only and not on any matter connected with operating or allied subjects.

Office-bearers were then elected and resulted as follows:—President: T. M. Palmer (3AMP); Vice-Presidents: S. Widgey (3SE), J. Anderson (3JA); Secretary-Treasurer: B. Scettrine (3BI); Committee Members: W. Brownbill (3BU), F. O'Donnell (3ZU), J. Ferrier (3MC).

In order to cover the rental of the auditorium and cost of postage and incidental expenses likely to be incurred during the year, zone membership was fixed at five shillings for

the first year and to be subject to review at a later date. Would those members not present send their membership fee along as soon as possible to the following address: B. Scettrine (3BI), 17a Raglan Street North, Ballarat.

3QC spoke on behalf of the Appeal for G Hams and it was agreed to ask zone members for donations and also to take a collection up at the end of the afternoon; this resulted in the sum of £2/10/6 being donated and 3QC is anxious for others who would like to contribute to this worthy Appeal to send donations direct to him at Terang.

The matter of field days was held over until the weather became a little more reasonable and predictable. It was decided that a zone hook-up should be held on the first Sunday in each month at 11 a.m. on 7 Mc.

To stimulate interest among members it was agreed to hold two DX contests. The phone section will be held on Sunday, 13th July, and the c.w. portion on Sunday, 27th July. Duration of both is six consecutive hours between 1400-2000 E.A.S.T. on previously mentioned days. All contacts outside VK to be counted as DX and number of contacts, multiplied by the number of continents worked, will be the score. The committee

## G L O - R A D

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will rely on the "Ham honesty" of entries; confirmation of contact is not required and copies of the logs of competing stations are to be in with the secretary by Sunday, 3rd August.

3KJ kindly donated two meters as prizes for the contests, one a 150 m.a. d.c. meter, and the other a 0.5 amp. r.f., so get busy fellows. Dud also offered a pair of 813s as a stimulus to zone members to break into the V.H.F. region for the first authenticated contact on 166 Mc. of 20 miles or over between zone members. They are to be the bait on the hook, so again go to it. Dud was thanked from the chair and a motion of thanks carried overwhelmingly.

3QC stressed the desirability of Hams, living reasonably handy to each other, getting together to form regular discussion groups which would help the chaps keep in touch with each other and be a source of knowledge to associate members. It was thought that a YT or YL Club should be formed too and probably these occasions could be combined with all joining forces for supper and any other social activity which would follow. The secretary would appreciate information from any such group so that it can be published and used as impetus to the formation of others.

The matter of an emergency network was brought up and it was thought that the zone should go ahead immediately and organise along lines as outlined below, members wishing to participate should be prepared to provide means of working on a spot frequency in a Ham band, viz.: 3.5 or 7 Mc. (this frequency to be decided upon by the committee later), then this frequency could be used for zone hook-ups and they themselves would become good practice in message handling, etc.

Finally it was decided that two conventions should be held annually—early in April and November, the first week-end in these months was chosen, Easter permitting! The next convention then will be at Warrnambool on the first week-end in November. The meeting then broke up with most of the fellows commenting on the bracing effect of the Colac climate.

Visits by those present were paid to the shacks of 3AMP and 3KX and were all impressed at the way DX rolls in at Ron's location, but they gathered Murray may be a serious competitor in the DX game if the number of aeriels in the Palmer back yard can be taken as any indication.

Remember the first S.-W. Zone hook-up will be on Sunday, 6th July at 11 a.m. on 7 Mc.

## QUEENSLAND

Secretary: R. Thorley, VK4RT, Box 638J, G.P.O., Brisbane.

Meeting Place: State Service Building, Elizabeth Street, City.

Meeting Night: Last Friday in each

The May general meeting of the Queensland Division was held on the 30th of the month at the usual QTH, the State Service Rooms. The President (4AW) occupied the chair, and Secretary (4RT) and Treasurer (4ES) also shared the official dais. It was most gratifying to hear the Secretary announce that our numbers have now passed the century mark. We feel sure that this is largely due to the service now being given to country members by 4WI, or should we say 4FN? One membership application recently received was from 4MU, a blind amateur, living in Mackay. The meeting unanimously approved 4RT's suggestion that he be awarded Honorary Membership whilst an Amateur.

Herb. Sprenger (4ES) reviewed the recent work of the Executive in obtaining Disposals Gear, and also announced that a quantity of Ground Plane Antennas were available. These are designed for 74 Mc. work, but are easily adaptable for 50 Mc. and even for 28 Mc.

By purchasing a quantity of these, the Institute has obtained them for approximately 6/- each. Intending purchasers are asked to contact the Secretary. Another buy, and a particularly good one at that, is the Combination known as the "522." We only had 24 hours to clinch this deal, but in that time managed to dispose of seven of them. The unit is a transmitter-receiver designed for the 112-150 Mc. range but is easily convertible to 50 Mc. Some power supply equipment is on its way over the horizon, but no further details at this sitting. At all events as everybody listens to 4WI these days these gems have rather lost their lustre.

To revert to the general meeting once again, the lecture programme was given a flying start by 4FN, with his excellent presentation entitled "Broadcast Studio Technique." Frank was well qualified to speak on this subject and Pat Kelly (4KB), in thanking 4FN on behalf of the meeting, surely echoed the sentiments of most of those present in saying that some of the B.C. station practices were a revelation, notably the fairly common practice of pouring all one's gain down the sink (to achieve an cnd, we hasten to add). The lecture was subsequently re-delivered over 4WI on the following Sunday morning and was met with enthusiastic approval.

4AW outlined the programme for the D.F. field day on the 22nd June and seven members offered their cars

for transport service. In an effort to find out the individual preferences of those present in regard to lectures, circulars were handed around and members asked to indicate their particular choices. In order to finance future Disposals purchases, it was suggested by 4KB that a pool be formed of interested members each of whom would contribute to a fund to be used for Disposals "buys." Some half dozen members announced their

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willingness to help. The Institute's resources at present do not permit of indiscriminate spending, hence the advantage of the scheme above.

In closing, it is the hope of the V.H.F. Section of the Executive (namely 4AW, 4RT, 4ZU and 4KB) that the glut of DRI00s will see a little more activity on the band closest to their hearts, namely "Gud ole Six." On the day after their acquisition of same, 4ES and 4XG had them going on 53 Mc., which shows that it is not by any means a big job to convert the things.

## SOUTH AUSTRALIA

Secretary: E. A. Barbier, VK5MD,  
Box 1234 K, G.P.O., Adelaide.  
Meeting Place: 17 Waymouth Street,  
Adelaide.  
Meeting Night: Second Tuesday of  
each month.

The monthly general meeting for June was held at 17 Waymouth St. and the following visitors were present. Messrs. Kelly, Hampel, Little, Millard, Basendale, Shultz, Wright, Moyle, VK2OX and FK6XA. The lecturer for the night was Mr. Cliff Moule (VK5CX) who chose as his subject "The Use of the Decibel," and judging by the interest and questions asked both during and after the lecture, Cliff did a good job with a subject that did not lend itself to interest.

Mr. Moule began by giving the derivation of the name decibel and sketched its growth and application whilst explaining and describing the various technical terms it superseded. Cliff gave a short blackboard example of logarithms for the benefit of those present, explaining that without at least a working knowledge of "logs" it would be impossible to appreciate the use or application of the decibel. The lecture was rounded off with a practical demonstration of d.b. increase and decrease on amplifiers, simple peak limiters, etc. He was assisted by Mr. Rogers who maintained a sphinx-like attitude throughout thus creating the necessary "atmosphere." Joking aside the practical demonstration was extra good and some of the phone men present must have blushed internally at some of the "S9 plus 40 d.b." reports they have been in the habit of giving. A vote of thanks was ably proposed by Mr. Ramsay (5GD) which was received with acclamation.

Following this lecture Mr. Ross Harris (5FL), with the aid of a build-up by Mr. Hal Austin (5AW, the President), gave an interesting talk on operating procedure. This talk was received with more than usual interest and whilst it was evident that members present did not wholly agree with Ross, the benefits of such a talk were apparent, and Ross is to be congratulated on his sincere and

praiseworthy attempt to raise the standard of Amateur operating. Intermediate members please copy.

Finally, Lt. Bert Krysgman (PK 6XA) gave a short talk on his and other PK activities. This talk was very interesting and amusing, as Bert is an unconscious humorist, and but for the lateness of the hour the members would have appreciated more from Bert. To round all this up "Yours Truly" took the floor and gave a short explanation as to why the Amateur Notes were missing from the local paper on Saturdays. A petition was prepared immediately and signed by all members present bar one, who is to be congratulated on at least having the courage of his convictions. My closing remarks regarding the Women's Croquet Club were entirely misunderstood by the members, much to my embarrassment and their delight. The meeting closed at 10.50 p.m. with definite signs that all had enjoyed themselves once again.

VK2OX, who was present at the monthly meeting, gave members an indication that he would probably be a VK5OX. Welcome o.m. and if we can help in any way, don't hesitate to ask. Noticed new Council member George Ramsay (5GD) very busy at the general meeting. A decided acquisition to the Council.

"Nobby" Prince is busy working any DX available on 28 Mc. The DX is coming in so well to him one would be inclined to think they were locals.

Noticed young Michael Palk, brother of Brian Palk (5FQ) was one of the contestants in a quiz show over the air recently. Michael is often heard from 5FQ and has a very pleasing voice. Brian, what about "biting" Michael for his quiz prize money for a new tube?

Great activity in Seaford Avenue, Kingswood. The new three foot water main was being laid at record speed in this avenue until it reached number 12. Surely the water cooled tube doesn't use that much water Cecil?

The mad scramble between VK2 and W Hams for a contact with VR6AA during late afternoons recently did nothing to aid Amateur Radio. Say chaps, this game is a hobby not a fight for existence.

The appointment of Mr. John Allen (5UL) and Mr. Sheard to the Students' Class, as theory and code instructors respectively has met with the approval of all VK5 Hams. Mr. Allen's professional knowledge plus the varied experience gained during the war in the R.A.A.F. made him an ideal choice for the theory, and Mr. Sheard's ability with the code dates back 40 or 50 years to his association with the P.M.G.'s Department. During the war the R.A.A.F. co-opted his services as code instructor at Parafield and his success with chaps who found the code hard to master

was phenomenal. The Council feels that in these two instructors they are giving the prospective Ham a solid foundation.

Mr. George Ramsay (5GD), who is the guiding hand behind the newly formed disposals scheme, reports business as good. George has a long list of bargains for sale, and members are advised to contact him if they have any radio gear to buy or sell. Country members will find that a letter to George might be the means of saving them a few pounds. Just write and say that you have to sell or want to buy and George will do the rest.

Where the rumour started that city members were getting issues of Commonwealth disposals gear to the exclusion of country members is hard to say, anyway it is all "hokey" and country members can rest assured that with the present Council the interest of the country Ham is given 100% consideration. By the way, if anybody hears any rumour why not contact Doc Barbier or any Council member and give them the opportunity to deny it. This is the only way to scotch rumours.

The official publication of the Professional Radio Employees' Institute of Australia "QTC" has decided to carry "Ham" notes in future because it is obvious that a large number of its members are keenly interested in Amateur Radio. My, my, we are beginning to be appreciated.

## WESTERN AUSTRALIA

Hon. Secretary: W. E. Coxon,  
VK6AG, Howard St., Perth, W.A.  
Meeting Place: Builders' Exchange,  
St. George's Terrace, Perth.  
Meeting Night: Second Monday in  
each month.

The June meeting was held on the 9th of the month, and was very well attended. GGM presided, and welcomed visitors, A. Mead (VK2AJA), Hal Laid (ex-WIRJ) and Harry Simmonds (VK6RX). After the business had been dealt with an interesting evening was spent. A debate on modulation was held, entitled "Quality versus Quantity," and was enjoyed by all present.

6KX was the Independent Adjudicator, and pronounced the winning side "Quality." The sides were:—"Quality"—6EV, 6FC; "Quantity"—6HL, 6PX.

6WG demonstrated Modulation Envelopes from a Flying Doctor Voice-Operated Carrier Transmitter, on a C.R.O. which was a good follow-on to the previous subject.

6WS followed with a demonstration of his little Transceiver of British design, and in conjunction with 6FR, explained it in detail.

The W.I.A. news is broadcast by 6WH on 7165 Kc. each Sunday at

0900. Please keep this channel clear boys. After the broadcast has finished 6WH will call country stations only who want any further information about the news notes, and when he goes over please call for three minutes. This will give him a chance to tune from one end of the band to the other to log stations calling 6WH. Don't call a dozen times before signing.

#### PERSONALITIES

GDF has his brand new 50 ft. tower crowned with 3 antennas (3 element close-spaced 14 Mc., 3 element close-spaced 28 Mc., and 4 element wide-spaced 50 Mc.). A real fine effort. — 6HL has his new tower erected, and it is graced with a 2 element 14 Mc. beam plus a 3 element 28 Mc. — 6CB heard regularly now on 14 Mc. phone. Bert is now a QRM merchant with the rest of the boys. — 6NL has altered his modulator and now puts out a very fine signal. We believe Vic is cathode ray minded, and will soon be installing this type of monitoring. — 6EV is a very busy man these days with the Exchange Bureau. He is doing a fine job and is to be congratulated on his efforts. — 6RU is receiver building again. Jim is on a "super-duper" coil unit, one that he reckons will even out-do the Atom Bomb in its sensational results.

6WH is still heard regularly on 7 Mc. keeping that band warm, and

also from the wolves who would like to tear it away from the Amateurs. — 6KW has been a busy man of late, fitting an electrically driven turning mechanism to his beam. Results are excellent, and it's turned out how he expected it would. Even the Selsyn Indicator is working O.K. — 6WS not heard as regularly as usual. Are those country trips keeping you off Skipper? Anyway you're not missing much. — 6FL has reached the stage of painting his tower. Guess the skyline of Subiaco has yet undergone another change. — 6KE regularly heard keeping VK6 on the map and making a hole in the ether from Cottesloe way. — 6GM is a nightly pounder of "brass." What's happened to the phone Cliff? You have to think of the status of QRM (Inc.) of Subiaco so what about it?

#### SURPLUS GEAR AND EXCHANGE BUREAU

Great activity in the Surplus Gear and Exchange Bureau lately, particularly in the way of tubes. The Division has been fortunate in acquiring quite a range of new Disposals tubes and a large quantity have been sold. There are still a few types available, though the 1852 at 12/6 have greatest surplus.

If you require anything, including assistance in purchasing, especially if you are an out-of-town member, just

drop a line to 6EV, at 272 Crawford Road, Maylands, or the W.I.A., Box N1002, and he will do what ever he can for you.

NOTE.—When ordering equipment, order should be covered by remittance made payable to W.I.A. and sent to 6EV. Some stuff has to come from the East, so don't be surprised if you have to wait a couple or three weeks. This applies mainly to tubes.

## TASMANIA

Secretary: J. Brown, VK7BJ  
12 Thirza Street, New Town.  
Phone W 1328.

Meeting Place: Photographic Society's Rooms, 163 Liverpool Street, Hobart.

Meeting Night: First Wednesday of each month.

Council meeting for May was held at T. Connor's (7CT) home, 285 Elizabeth Street, North Hobart, at 8 p.m. on Friday, 23rd. Present were 7LJ in chair, 7CT, 7BJ, 7CJ, 7CW, 7RF, 7PA. Minutes of previous meeting were read and confirmed. Secretary reported business quiet, quite a let up after the pressure of Convention. General Business: the items referred back from Convention and the general meeting's decisions were reported.

Secretary read a copy of a letter sent to A.R.R.L., C.Q. and R.S.G.B.

# RED LINE TRANSFORMERS & CHOKES

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A.W.5



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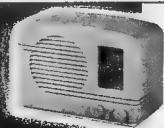
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re the listing of VK7 in countries' list.

**New Members.**—Applications from F. J. Evans, full city; D. G. Peck, city associate; M. J. Ruper, Burnie, and P. J. Crawford, Launceston, country associates, were received and passed on for next general meeting.

The main item, Mrs. Connor's supper, was then attended to and with the saying of thanks for her attention, the meeting closed.

**General meeting at the Rooms at 8 p.m. on 4/6/47.** Correspondence: Radiograms re VK3 and LU 50 Mc. working and new Federal Executive, letters from VK7 to Federal Secretary re decisions on Convention items which were all in the affirmative. Increased cost of "A.R." to 6d., inclusion of "A.R." in subscription of full members with 5/- increase in subscription, paid secretary for Federal Council and alteration of end of financial year to 30th March. The meeting endorsed the action of Federal Council in the selection of new officers to fill the vacancies; moved 7CL and seconded 7AL. New members were elected.

The chairman in welcoming the new members present said he hoped they would find pleasant association with members of the Division, he

also welcomed Mr. Aschmann as a visitor and suggested a nomination card for him. Mr. Aschmann said he hoped to receive a station license any time and then become a full member. Dinner committee reported that all was well only that a hotel was not to be had, a local cafe had accepted the job.

**Food for Britain.**—A report from 7XA was to the effect that with more funds he would be happy so a hat around realised £5/11/6 to satisfy temporarily his needs, this making it possible to complete another batch of 25 parcels. Here are the figures promised last month: cash received to date £30/19/3½, parcels forwarded 26, preparing 25. Since this scheme was started and advertised in our monthly bulletin to members, cash has been received from throughout the State including Waddamana and Launceston.

**General Business.**—The main item arose out of the International Telecommunications Conference and some lively discussion ensued and after thrashing the subject soundly a couple of motions eventuated. (1) That this Division do what they can to promote interest in the Ham ideals amongst influential bodies—the Services, Parliament, etc.; moved by 7AL and seconded by 7KA and 7AL.

(2) That the above matter be left to the incoming Council to take the necessary action; moved 7TR, seconded 7XA, carried.

7TR gave some information on the alterations to allocations arising out of a contact he had with a W and his complaint made to said W re VK7 alteration. Seems he has been doing a bit of personal correspondence with Goodman, of A.R.R.L., which has already started the ball rolling. He outlined how the change came to be made; something about political areas but seems that the Gs concerned forgot England, Scotland, Wales, etc., which seems to annul the political divisions argument.

The idea of making a documentary film of amateur activities for general circulation is being investigated and some progress has been made; this is a matter that should interest most divisions and we would like to hear other impressions on it. We have a special committee working on the idea with 7LJ at its head, being an ardent photographer himself and a member of the Photographic Society, Lon., should know the "right people."

## ANNUAL GENERAL MEETING

This meeting was held at the Rooms at 6 p.m. on Saturday, 14th



June, to a large attendance. The President read the annual report which showed a year of remarkable progress and activity. On a proposal by 7AL, seconded by 7TR, the report was adopted. The treasurer's report showed a financial improvement in keeping with the rest, the balance having increased from £8/9/2 last year to £22/10/11 this year.

During the year £69 had been handled including "A.R." subscriptions, stationery, rental of rooms, notices, postage, etc., were the main items of expense. On the motion of 7PA, seconded by 7CT, this report was adopted.

The following appointments were made:—Patron: F. W. Medhurst (7AH); QSL Manager: T. A. Allen (7AL); Publicity Officer: 7YY; Traffic Manager: 7YY; Vice-Presidents: 7PA, 7CW and 7BQ.

Northern members for Council were 7LZ (C. W. Wright of Launceston) and 7AB (D. Fisher of Burnley) who were re-elected unopposed. 7LZ agreed to arrange for notes to "A.R." to be supplied from the northern end, a much needed addition.

Some discussion took place about the present "Ragchewing Sessions" and the previously reported suggestion that alternate evenings and mornings be adopted was agreed to and set out as follows:—second Friday 8 p.m. and fourth Sunday 9.30 a.m. each month either phone or c.w.

It was agreed to hold the annual general meeting and dinner on the long week-end in March when better weather and longer days should be an advantage to all.

7LJ was elected President again and 7B, 7C, 7CW, 7LJ, 7CJ, 7RF, 7CT and 7TR were elected as Councilors. Thus the Council and officers for the ensuing period (nine months) are, with one exception (that of 7TR replacing 7PA), unaltered. One addition has been made to the Vice-Presidents, the inclusion of our northern old-timer, Len Crooks (7BQ). Auditors are 7NL and 7OM. At the close of the meeting an adjournment was made to the Windsor Cafe where dinner was partaken.

#### ANNUAL DINNER

The fare provided was good as was the amber fluid and all were satisfied. The toasts of the evening were along the usual lines and many good and interesting points were made and anecdotes told by the speakers.

Regrets were expressed at the news of Mr. Burbury's intended transfer to Adelaide and the good wishes of the members were tendered him through his deputy, Mr. Carroll. We trust that his successor will be as understanding as he has been.

Before concluding the programme, Mr. J. Brown moved a vote of thanks to the committee for the able way the dinner arrangements had been carried out and Mr. F. Gee replied stating that it was really nothing.

#### DX BOOK-KEEPING

(Continued from Page 7)

**Entries.**—As new countries are contacted, the Station Log page number should be entered opposite the country and under the appropriate band.

The country contacted may be underlined, as well as prefix and zone. The log page number under band is underlined when a QSL is received from that country. By totalling the

"underlines" for each page, under:—

- (1) Prefix—the total countries QSOed is known.
- (2) Individual Bands—the total country QSLs for each band is known.
- (3) Total (under Bands)—the all-band total QSLs are known.

A single page summary of all pages, A to Z, may be included at the front of the log, where progressive totals are made.

## FOR SALE, EXCHANGE, WANTED

5d. per line, minimum 2/-.

**FOR SALE, A SPECIAL!**—One 160 watt Ham phone transmitter absolutely complete, relay operated, with all tubes, power supplies, modulator, band-switched exciter, all in rack and cabinet construction. Details on application. B. M. Plowman, 111 High St., Terang, Victoria.

**FOR SALE.**—Eight Tube Super, coils all bands to 22 Mc., xtal filter, £25. VK3JA, Nullawarre, Victoria.

**FOR SALE.**—New 813 tube and socket; CV6 tubes; one FS6 receiver converted to a.c. with tubes, no power supply; one U.H.F. modulated oscillator, bandswitched from 17.5 to 160 Mc.; two pairs 120 ohms phones, new. B. M. Plowman, 111 High St., Terang, Victoria.

**FOR SALE** pair RCA 801s, as new, £2 pair. VK3UJ, 48 Baker Parade, Ashburton, E.13.

**FOR SALE** pair 805s with sockets, £6 pair. Pair of 801s, £1/10/- pair. These tubes have been little used, are in good condition and can be tested if desired. J. Symons, VK3JT, 30 Eleanor St., Burwood, E.13, Victoria.

**WANTED URGENTLY.**—One Trip-let 0 to 50 or 0 to 160 m.a. meter, model 326, square dial type. Will pay £3 or swap gear for one. H. G. Wohlers, VK3YV, Wangaratta.

**FOR SALE.**—Six only new Type A Mark III Transceivers, 3 watt c.w., 3.2 to 9 Mc., a.c. or 6 volt; complete with vib. unit, 3 spare valves, phones, instruction book, etc., £10.

One only Piezo Asiatic T3 Microphone, new, £8/5/-.

Ten-line U.C. Switchboards with magnets, no handset, £1/10/-.

K. V. Scott, VK3SS, Johnson St., Maffra, Victoria.

**FOR SALE.**—13 Tube A.W.A. Communication Receiver, 2 r.f., 3 i.f. stages, xtal filter, 5 meter, complete with a power supply and speaker, cont. freq. coverage 2.5 to 22 Mc., £79/10/- or near offer. J. Miles, Wireless Stn., Ballan, Phone 61.

**WANTED.**—Class "C" Wavemeter, any condition. Power supply and valves not essential. VK3LL, 4 Beech St., East Malvern, Phone UL 1642.

**WANTED TO BUY.**—Kingsley AR7 Receiver in good order and condition. S. E. Widgery, 703 MacArthur St., Ballarat, Victoria, VK3SE.

**WANTED TO BUY OR EXCHANGE.**—Genuine National H.R.O. Coils, any frequencies. B. M. Plowman, 111 High St., Terang, Victoria.

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Anode Volts	Screen Volts	Peak A.F. Volts	Fixed Bias	Cathode Resistor	Anode Current Ma.	Screen Current Ma.	Load Ohms	Output Watts
PUSH PULL CLASS AB,								
360	270	45	—22.5		88-140	5-11	3,800	18
400	250	43.5		190	96-110	5-11	3,500	24
360	270	45	—22.5		88-140	5-11	6,800	26.5
400	300	57		200	112-128	7-16	6,800	32
400	300	50	—25		102-152	6-17	6,800	34
500	300	50	—25		102-156	6-17	8,800	44
600	300	55	—27.5		80-149	5-17	10,000	54
PUSH PULL CLASS AB,								
400	300	78	—25		102-240	5-10	3,200	55
500	300	78	—25		102-240	5-10	4,240	75
600	300	78	—30		60-200	5-10	6,400	80



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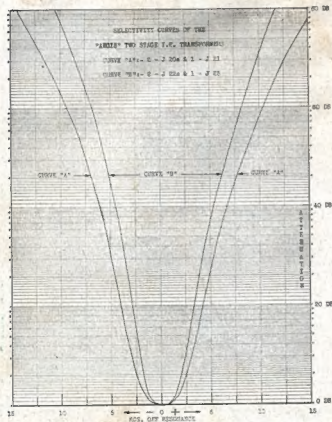
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